

### **Remarks/Arguments**

In the Office Action dated December 8, 2009, it is noted that claims 1-28 are pending in this application; that claims 1, 7, 12, 18, 22, and 25 stand rejected under 35 U.S.C. §102; and that claims 2-6, 8-11, 13-17, 19-21, 23, 24, and 26-28 stand rejected under 35 U.S.C. §103.

Claim 7 has been amended as shown in the listing above to remove a redundant phrase that appears to have been inadvertently inserted in a response dated November 20, 2007 and thereby return that portion of the claim to its originally filed form. No new matter has been added.

### ***Cited Art***

The following references have been cited and applied in the present Office Action: Figure 1 and paragraphs [0002]-[0006] of Applicant's U.S. Patent Application (hereinafter referenced as "*AAPA*"); U.S. Patent 4,554,533 to Bosnak (hereinafter referenced as "*Bosnak*"); and U.S. Patent 5,588,065 to Tanaka et al. (hereinafter referenced as "*Tanaka*").

### ***Rejection of Claims 1, 7, 12, 18, 22, and 25 under 35 U.S.C. §102***

Claims 1, 7, 12, 18, 22, and 25 stand rejected under 35 U.S.C. §102 as being anticipated by *AAPA*. This rejection is respectfully traversed.

Claims 1, 7, 12, 18, 22, and 25 are all independent claims. Claims 1, 7, and 12 are apparatus claims, whereas claims 18, 22, and 25 are method claims. Each of claims 1, 12, 18, and 25 recites substantially similar limitations; in a like manner, each of claims 7 and 22 recites substantially similar limitations. For each like set of claims only one set of limitations will be discussed herein below. It will be understood that, for the sake of brevity of this response, the remarks below are intended to pertain to all the independent claims that include such similar limitations.

The USPTO has taken contradictory positions with respect to the teachings therein and the applicability of the *AAPA* to the claims. Moreover, the Examiner has not responded to the arguments made in the prior response with respect to this matter. Applicant respectfully requests an explanation of the inconsistent positions taken by the USPTO with respect to *AAPA*. For ease of reference, the inconsistencies and contradictory positions are outlined below.

AAPA was employed to reject certain independent claims under in the Office Action dated July 30, 2007. But that rejection was apparently overcome by the Applicant's response filed on December 14, 2007 as evidenced by the Final Office Action dated November 12, 2008. In that Final Office Action, a new rejection replaced the earlier 35 U.S.C. §102 rejection. Contrary to the present position espoused in the current Office Action, the November 2008 rejection utilized a combination of Yamaguchi and AAPA under 35 U.S.C. §103 for respect all the independent claims because AAPA "fails to disclose incrementally increasing gain adjustments to the reproduced audio program signal as a function of an increasing amplitude of the output signal ... incrementally decreasing gain adjustments to the reproduced audio program signal as a function of a decreasing amplitude of the output signal... as taught in Yamaguchi." [Emphasis supplied]. *See Final Office Action (November 2008) at page 4.*

In response to the November 2008 Final Office Action, Applicant successfully argued that the combination of Yamaguchi and AAPA did not teach, show, or suggest the invention defined in the independent claims. *See Applicant's response dated March 11, 2009.* Success of Applicant's argument was apparent from the USPTO comments which stated that "Applicant's argument is deemed persuasive." *See Advisory Action dated May 6, 2009 at paragraph 13.* Thus, neither Yamaguchi nor AAPA taught the limitations found in the independent claims.

Finally, again in apparent contradiction the prior prosecution, the prior Non-Final Office Action from May 2009 inexplicably reverted to rejecting all the independent claims under 35 U.S.C. §102 in view of the AAPA. This rejection was made without any explanation about why contradictory and inconsistent positions on the teachings of AAPA were being adopted. No new paragraphs of AAPA had been proffered in that Office Action to explain the apparent reversal of the earlier USPTO admission that AAPA "fails to disclose incrementally increasing gain adjustments to the reproduced audio program signal as a function of an increasing amplitude of the output signal ... incrementally decreasing gain adjustments to the reproduced audio program signal as a function of an decreasing amplitude of the output signal ... as taught in Yamaguchi." *See Final Office Action (November 2008) at page 4.*

Instead, the May 2009 Office Action baldly stated that "[t]he term **incremental** is rather broad thus the varying changes of gain in regards to noise of AAPA (*AAPA, fig. 1; para 0006:*

varying changes of amplitude due to ambient noise level is incremental) could incrementally change the amplitude based on the amount of surrounding noise level.” See *Office Action (May 2009)* at page 2, paragraph 1 and also see *present Office Action* at page 2. The Examiner fails to read the terms in the proper context set forth by the Applicant. The Examiner apparently relies on an contrary interpretation of the term “incremental” from the claims without relying on any express teaching or statement or support for such a contrary interpretation in the prior art or AAPA. Applicant clearly defines the term incremental to be other than continuous. By Applicant’s own teachings from which the USPTO derives the teachings of AAPA, the term incremental is best understood as a piecewise or stepwise change rather than a smooth continuous change. See *Applicant’s specification at paragraph [0015]*.

Based on the record by the USPTO, it is clear that the Examiner has adopted a number of inconsistent and apparently contradictory positions with respect to AAPA. Moreover, no explanation or further evidence has been supplied by the Examiner to explicate these inconsistencies. In view of the admissions of record by the USPTO, it would appear that one can reasonably conclude that AAPA still does not teach, show, or suggest all the limitations of the independent claims and particularly those limitations that are substantially similar to the limitations in claim 1 for “incrementally increasing gain adjustments to the reproduced audio program signal as a function of an increasing amplitude of the microphone output signal, and incrementally decreasing gain adjustments to the reproduced audio program signal as a function of a decreasing amplitude of the microphone output signal”. Moreover, in light of the current prosecution history established by the USPTO, it is improper for the USPTO to make a bald assertion such as “[t]he term **incremental** is rather broad thus the varying changes of gain in regards to noise of AAPA (*AAPA, fig. 1; para 0006: varying changes of amplitude due to ambient noise level is incremental*) could incrementally change the amplitude based on the amount of surrounding noise level” without providing some teaching or context from AAPA or case law that would support the assertion. *Ibid*.

AAPA does not teach, show, or suggest that any prior art system operates using incremental changes. Figure 1 of the present application lacks any teaching of “increment”, “incremental”, or “incrementally” changes. AAPA also lacks any mention of these terms in reference to the prior art embodiment in Figure 1. Paragraphs [0003] and [0005] of AAPA

clearly explain that changes are made directly and continuously as a function of the volume. Direct is understood as relating to direct proportionality as opposed to indirect proportionality. Continuous is understood as being a non incremental or non-stepwise type of change. Continuous changes are normally smooth without any step changes or step discontinuities.

Paragraph [0006] characterizes the problem of the prior art speaker system as one wherein “the conventionally compensated speaker output signal provides commensurately frequent and widely varying changes in sound levels that can be annoying to listeners.” In contrast to continuous change systems, this paragraph defines a need to overcome this problem of the prior art speaker system by stating that “what is needed is a speaker system providing direct, but incremental, amplitude compensation as a function of  $f_i$  of such frequent and widely varying changes in ambient noise.” [Emphasis supplied]. From a simple analysis of these two sentences at the end of paragraph [0006], it is clear that the concept of “incremental” compensation of the frequent and widely varying changes in the ambient noise is definitely missing from the conventional prior art speaker system described in AAPA because the Applicant states that an “incremental” approach is what is needed to overcome the problems in the prior art.

AAPA makes it clear that the problems of prior art speaker systems are caused by continuous or continual gain increases for the input signal. In paragraph [0005] of AAPA, it is clearly stated that “ $P_1$  introduces a transfer function  $f_1$  providing continually increasing gain of  $S_{in}$  with increasing amplitude of a signal process control signal”. [Emphasis supplied]. This is consistent with the problem stated in paragraph [0006] of AAPA that “the conventionally compensated speaker output signal provides commensurately frequent and widely varying changes in sound levels that can be annoying to listeners.” In other words, the continual increase in the gain of the signal gives rise to the commensurately frequent and widely varying changes in sound levels that annoy listeners.

Applicant’s solution to the prior art problem is to provide incremental compensation to the input audio signal. Incremental compensation is defined by Applicant and distinguished expressly from continual or continuous compensation as employed in the prior art speaker system of AAPA. In paragraph [0015] of the present application, Applicant clearly draws a distinction between the terms “incremental” and “continuous” in an attempt to clarify the meaning of “incremental”. In that paragraph, Applicant states that the signal process with processing

functions **“are incremental, as opposed to continuous.”** [Emphasis supplied]. *See Applicant’s response dated August 2009.* Applicant unequivocally contrasts the terms “incremental” for his claimed invention with “continuous” as applied to AAPA. By performing his functions in an “incremental” manner as opposed to a continuous manner of the prior art, Applicant achieves the expressly desired solution to the prior art problems, namely, “that the volume of the reproduced sound does not change too frequently as a consequence of rapidly occurring large changes in the ambient noise”. *See Applicant’s specification at paragraph [0015] and compare with paragraph [0006].*

The exemplary embodiments of various incremental adjustments are described and even claimed as being stepwise, such as in steps of about 1 dB to about 10 dB, in paragraphs [0018] and [0024] and in claims 2, 13, 19, and 26. The steps expressed by a “non-linear equation” in paragraph [0018] could have been expressed alternatively as being piecewise linear or even discontinuous. These latter terms are provided only to assist the Examiner in understanding the term “incremental” using similar mathematical terms and concepts that may be more familiar to the Examiner. Moreover, these alternative terms help to underscore that stated differences from and opposition to the term continuous in the prior art. It is understood that these alternative terms are not intended to be used to actually define the term in the claims since these words do not appear in the specification.

Since the prior art described in paragraphs [0002]-[0006] relies on a continuous adjustment or compensation and since the incremental adjustment in the presently claimed invention has been defined as being “as opposed to continuous”, which is in the prior art form of adjustment, it is submitted that the term “incremental(ly)” cannot be reasonably interpreted to mean or include in its meaning any concept of the prior art encompassing “continuous(ly)”. Any attempt, such as the ones on pages 2-4 of the present Office Action, to expand the meaning of “incremental(ly)” to include a concept of “continuous(ly)” from the prior art system is clearly improper and it is contrary to, and ignorant of, Applicant’s express teachings. As explained above, a definite and express distinction for “incremental” from the prior art concept of “continuous” has been expressly made by the Applicant. That express distinction in paragraph [0015] of Applicant’s specification cannot be ignored or diminished.

From the remarks above, it is clear that AAPA still lacks any express teaching, showing, or suggestion for “incrementally increasing gain adjustments to the reproduced audio program signal as a function of an increasing amplitude of the microphone output signal, and incrementally decreasing gain adjustments to the reproduced audio program signal as a function of a decreasing amplitude of the microphone output signal”, as defined in claim 1. The term “incrementally” in claim 1 cannot be interpreted as being broad enough to encompass the “continuous” nature of compensation in the prior art speaker system in AAPA without completely ignoring the definition set forth expressly by Applicant in the specification. As a result, it is believed that AAPA does not teach, show, or suggest all the limitations of claim 1. Since independent claims 12, 18, and 25 all include limitations substantially similar to those discussed above from claim 1, it is also believed that AAPA does not teach, show, or suggest all the limitations of claims 12, 18, and 25.

Claims 7, 12, 22, and 25 all include a limitation that calls for “incrementally increasing high frequency response of the reproduced audio program signal”. It has already been established above that “incremental” is defined by Applicant as being “as opposed to continuous”. See *Applicant’s specification at paragraph [0015]*. AAPA lacks any teaching that adjustments should be incremental. AAPA appears to teach that adjustments to signals are to be made continuously or continually, which in turn leads to the problem of frequent and widely varying changes in sound levels that are annoying to listeners. See *AAPA at paragraph [0006]*. It is only by using the incremental adjustments defined in these claims that one can overcome the problems of the prior art. Without such a teaching in AAPA, it is submitted that AAPA does not teach, show, or suggest all the limitations of claims 7, 12, 22, and 25.

In the present Office Action on page 2, the Examiner states “[e]ssentially, the adjustment of gain depends on the ambient noise, therefore, if, the ambient noise as a widely varying change, so will the gain adjustment and if the ambient noise has an incremental change, so will the gain adjustment.” The Examiner’s hypothesis simply looks at possible input and output signals and makes a determination about patentability. This hypothesis by the Examiner ignores the claimed limitation. The claims require that the first transfer function incrementally increase or incrementally decrease gain adjustments to the reproduced audio program as a function of the amplitude of the microphone output signal. The Examiner’s hypothesis from AAPA ignores that

the transfer function defined for Figure 1 provides linear, direct, and continuous gain adjustments, whereas the claimed first transfer function provides incremental gain adjustments. As such, AAPA fails to teach, show, or suggest all the limitations of the independent claims.

AAPA does not teach, show, or suggest the claimed limitation of “means for enabling the microphone output signal during first increments of time when the reproduced audio program signal is substantially off”. [Emphasis supplied]. AAPA clearly states that “S2 transfers to signal output o of electronic switch E1, providing signal process control signal S3 only when DC program signal S4 is in the off state, which occurs when  $S_{in}$  is below a minimum threshold level.” [Emphasis supplied]. See AAPA paragraph [0005]. In other words, the reproduced audio program signal (i.e.,  $S_{in}$  in Figure 1) is not off. It is simply less than some threshold. The threshold is not defined as being at or near a zero signal value. In AAPA, the signal that is off is S4 which is an output from DC detector D2. Thus, AAPA does not teach the limitations of the independent claims.

Also, does not teach, show, or suggest the claimed limitation of “the microphone output signal includes ambient noise signal components without including reproduced audio program signal components”. [Emphasis supplied]. Since the microphone output via S3 in AAPA is switched to the control of the transfer function when the signal S4 is below a minimum threshold level, it is clear that the ambient noise signal will include a reproduced audio program signal. This occurs because the reproduced audio program signal in AAPA of Figure 1 is not off when the microphone output is applied. Since the reproduced audio signal in AAPA is only below a threshold level, then it is reasonable to believe that the reproduced audio signal exists at some amplitude level that allows it to be present in the microphone output signal. Obviously, this condition is contrary to the claimed limitation which state that “ambient noise signal components [are present] without including reproduced audio program signal components”. Thus, AAPA does not teach the limitations of the independent claims.

In light of all the remarks above, it is submitted that the limitations of claims 1, 7, 12, 18, 22, and 25 are not anticipated by AAPA and would not have been obvious to a person of ordinary skill in the art upon a reading of AAPA. Thus, it is believed that claims 1, 7, 12, 18, 22, and 25 are allowable under both 35 U.S.C. §102 and 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

***Rejection of Claims 2, 13, 19, and 26 under 35 U.S.C. §103***

Claims 2, 13, 19, and 26 stand rejected under 35 U.S.C. §103 as being unpatentable over AAPA. This rejection is respectfully traversed.

Claim 2 depends from independent base claim 1; claim 13 depends from independent base claim 12; claim 19 depends from independent base claim 18; and claim 26 depends from independent base claim 25. The patentability of the base independent claims has already been discussed above and will be understood to be incorporated herein without further repetition. It should be understood that the rejected dependent claims include all the limitations from their respective base independent claims and also include additional limitations over those presented in the base claims.

The patentability of the base independent claims has already been discussed above and will be understood to be incorporated herein without further repetition, except to repeat that AAPA fails to teach, show, or suggest all the elements of the base independent claims.

In light of the remarks above and because of the dependence on the independent base claims discussed above, it is believed that the elements of dependent claims 2, 13, 19, and 26 would not have been obvious to a person of ordinary skill in the art upon a reading of AAPA. Thus, it is submitted that claims 2, 13, 19, and 26 are allowable under 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

***Rejection of Claims 3, 5, 8, 10, 14, 16, 20, 21, 23, 24, 27, and 28 under 35 U.S.C. §103***

Claims 3, 5, 8, 10, 14, 16, 20, 21, 23, 24, 27, and 28 stand rejected under 35 U.S.C. §103 as being unpatentable over AAPA in view of Bosnak. This rejection is respectfully traversed.

Claims 3 and 5 depend ultimately from independent base claim 1; claims 8 and 10 depend ultimately from independent base claim 7; claims 14 and 16 depend ultimately from independent base claim 12; claims 20 and 21 depend ultimately from independent base claim 18; claims 23 and 24 depend ultimately from independent base claim 22; and claims 27 and 28 depend ultimately from independent base claim 25. The rejected dependent claims include all the limitations from their respective base independent claims and also include additional limitations over those presented in the base claims.



The patentability of the base independent claims has already been discussed above and will be understood to be incorporated herein without further repetition, except to repeat that AAPA fails to teach, show, or suggest all the elements of the base independent claims. Bosnak has been added to AAPA because it has been stated that AAPA fails to disclose various elements related to the amplifier connection as defined in each of claims 3, 5, 8, 10, 14, 16, 20, 21, 23, 24, 27, and 28.

Bosnak appears to teach a method for the testing warning systems. In Bosnak, it appears that the operational status of a remotely controlled electronic siren is periodically tested without production of an audible sound. The test procedure includes energizing the voice coils of the siren loudspeakers with a signal outside of the audible range, sensing whether current flows in the speaker voice coil circuits, and storing the results of the test. Upon request, the stored information is apparently capable of being transmitted back to the command post. *See Bosnak in the Abstract.* But, Bosnak lacks any teaching, showing, or suggestion concerning “incrementally increasing gain adjustments to the reproduced audio program signal as a function of an increasing amplitude of the microphone output signal, and incrementally decreasing gain adjustments to the reproduced audio program signal as a function of a decreasing amplitude of the microphone output signal” as taught in Applicant’s Specification and as defined in Applicant’s independent base claim 1 and similarly in independent base claims 12, 18, and 25. Moreover, Bosnak lacks any teaching, showing, or suggestion concerning “incrementally increasing high frequency response of the reproduced audio program signal ... and vice versa” as taught in Applicant’s Specification and as defined in Applicant’s independent base claim 7 and similarly in independent base claims 12, 22, and 25.

In light of the remarks above and because of their dependence on the independent base claims discussed above, it is believed that the elements of dependent claims 3, 5, 8, 10, 14, 16, 20, 21, 23, 24, 27, and 28 would not have been obvious to a person of ordinary skill in the art upon a reading of AAPA and Bosnak, either separately or in combination. Thus, it is submitted that claims 3, 5, 8, 10, 14, 16, 20, 21, 23, 24, 27, and 28 are allowable under 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

***Rejection of Claims 4, 6, 9, 11, 15, and 17 under 35 U.S.C. §103***

Claims 4, 6, 9, 11, 15, and 17 stand rejected under 35 U.S.C. §103 as being unpatentable over AAPA in view of Bosnak and further in view of Tanaka. This rejection is respectfully traversed.

Claims 4 and 6 depend from independent base claim 1 and from intervening dependent claims 3 and 3/5, respectively; claims 9 and 11 depend from independent base claim 7 and from intervening dependent claims 8 and 8/10, respectively; and claims 15 and 17 depend from independent base claim 12 and from intervening dependent claims 14 and 14/16, respectively. The rejected dependent claims include all the limitations from their respective base independent claims and intervening dependent claims and they also include additional limitations over those presented in the base and intervening claims.

The patentability of the base independent claims and the respective intervening dependent claims has already been discussed above with respect to AAPA and the combination of AAPA with Bosnak. Accordingly, it will be understood to be incorporated herein without further repetition. Tanaka has been added to the combination of AAPA and Bosnak because it has been stated that the aforementioned combination fails to disclose various elements related to the diaphragm dimension of the single speaker driver as defined in each of claims 4, 6, 9, 11, 15, and 17.

Tanaka appears to teach a bass reproduction speaker apparatus that includes a cabinet with an opening having a division member inside thereof, a speaker unit disposed at the division member, a passive radiator disposed in the opening; an amplifier for driving the speaker unit, a detector for detecting a vibration of a moving system of the speaker unit, and a feedback circuit for feeding back an output signal from the detector to the amplifier. *See Tanaka in the, Abstract.* However, Tanaka lacks teaching, showing or suggestion concerning “incrementally increasing gain adjustments to the reproduced audio program signal as a function of an increasing amplitude of the microphone output signal, and incrementally decreasing gain adjustments to the reproduced audio program signal as a function of a decreasing amplitude of the microphone output signal” as taught in Applicant’s Specification and as defined in Applicant’s independent base claim 1 and similarly in independent base claims 12, 18, and 25. Moreover, Tanaka lacks any teaching, showing, or suggestion concerning “incrementally increasing high frequency

response of the reproduced audio program signal ... and vice versa” as taught in Applicant’s Specification and as defined in Applicant’s independent base claim 7 and similarly in independent base claims 12, 22, and 25.

In light of the remarks above and because of their dependence on the respective independent base claims discussed above, it is believed that the limitations of dependent claims 4, 6, 9, 11, 15, and 17 would not have been obvious to a person of ordinary skill in the art upon a reading of AAPA, Bosnak, and Tanaka, either separately or in combination. Thus, it is submitted that claims 4, 6, 9, 11, 15, and 17 are allowable under 35 U.S.C. §103. Withdrawal of this rejection is respectfully requested.

### ***Conclusion***

In view of the foregoing, it is respectfully submitted that all the claims pending in this patent application are in condition for allowance. Entry of this amendment, reconsideration of the application, and allowance of all the claims are respectfully solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner contact the Applicant’s attorney, so that a mutually convenient date and time for a telephonic interview may be scheduled for resolving such issues as expeditiously as possible.

In the event there are any errors with respect to the fees for this response or any other papers related to this response, the Director is hereby given permission to charge any shortages and credit any overcharges of any fees required for this submission to Deposit Account No. 07-0832.

Respectfully submitted,  
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April 8, 2010